CSA1618 DWDM-DE

EXPERIMENT-29

EVALUATING ACCURACY OF THE CLASSIFIERS

AIM:

To create evaluating accuracy of the classifiers using weka tool.

PROCEDURE:

1. Download and install WEKA.
2. Open WEKA and Choose "Explorer" from the main menu.
3. Under Preprocess, Click on the open file button and select the dataset. Ensure that your dataset contains categorical (nominal) attributes.
4. Go to the Classify tab.
5. Click Choose and select a classifier. Examples:

   J48 (Decision Tree) → trees > J48

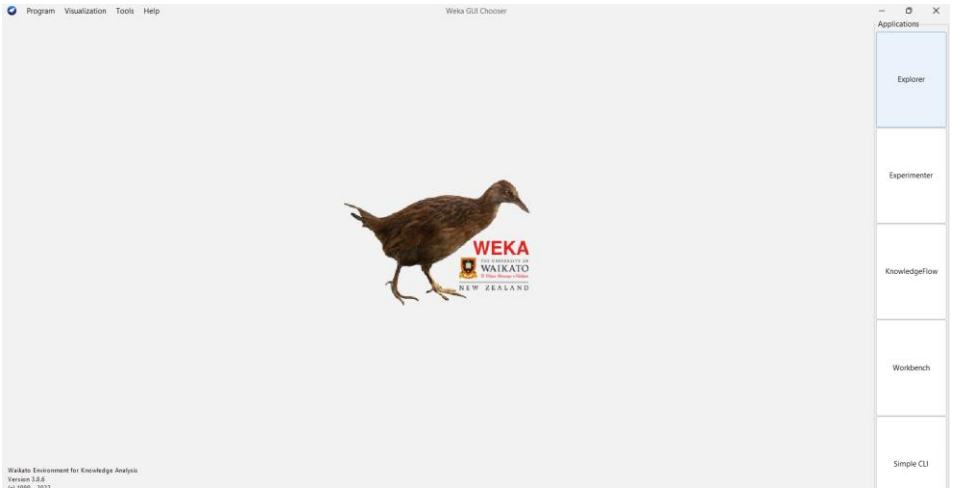
   Naïve Bayes → bayes > NaiveBayes

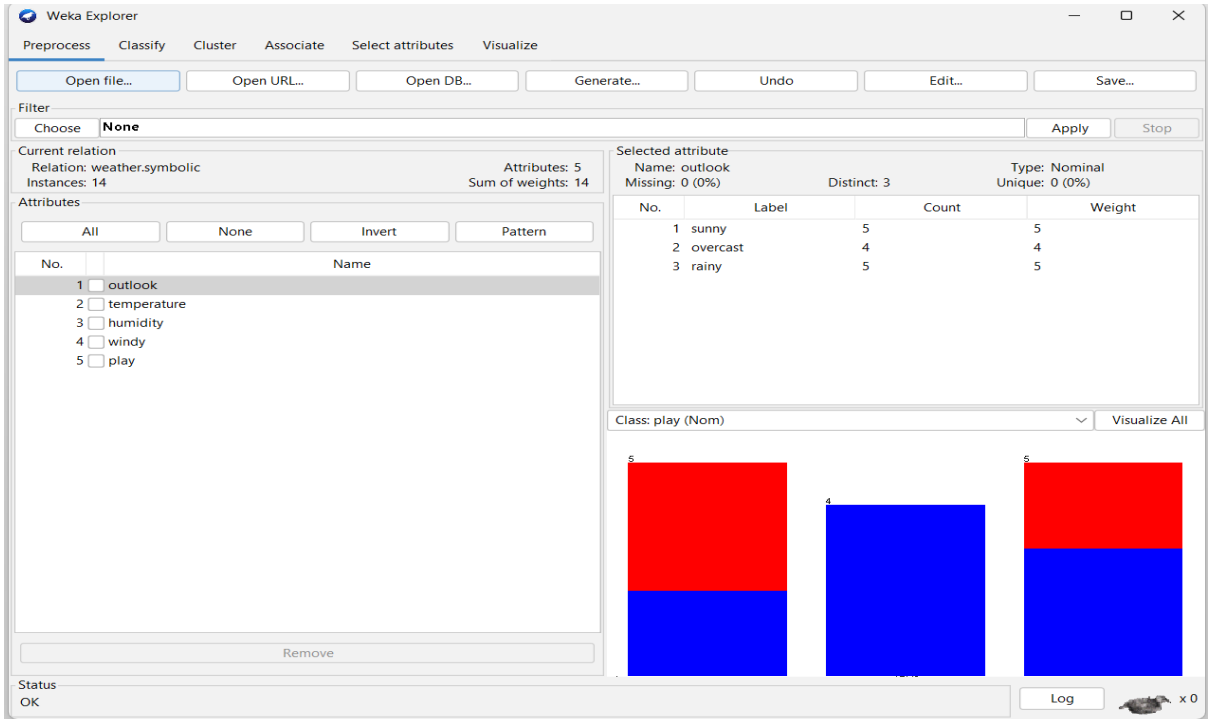
   SMO (SVM) → functions > SMO

   Random Forest → trees > RandomForest

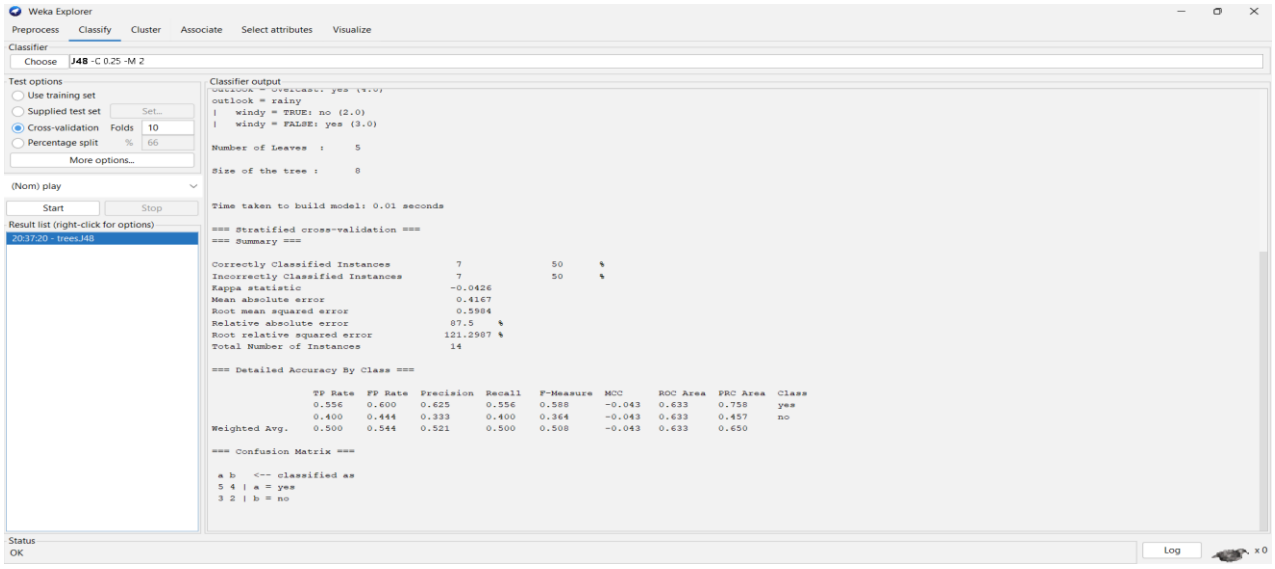
   Logistic Regression → functions > Logistic

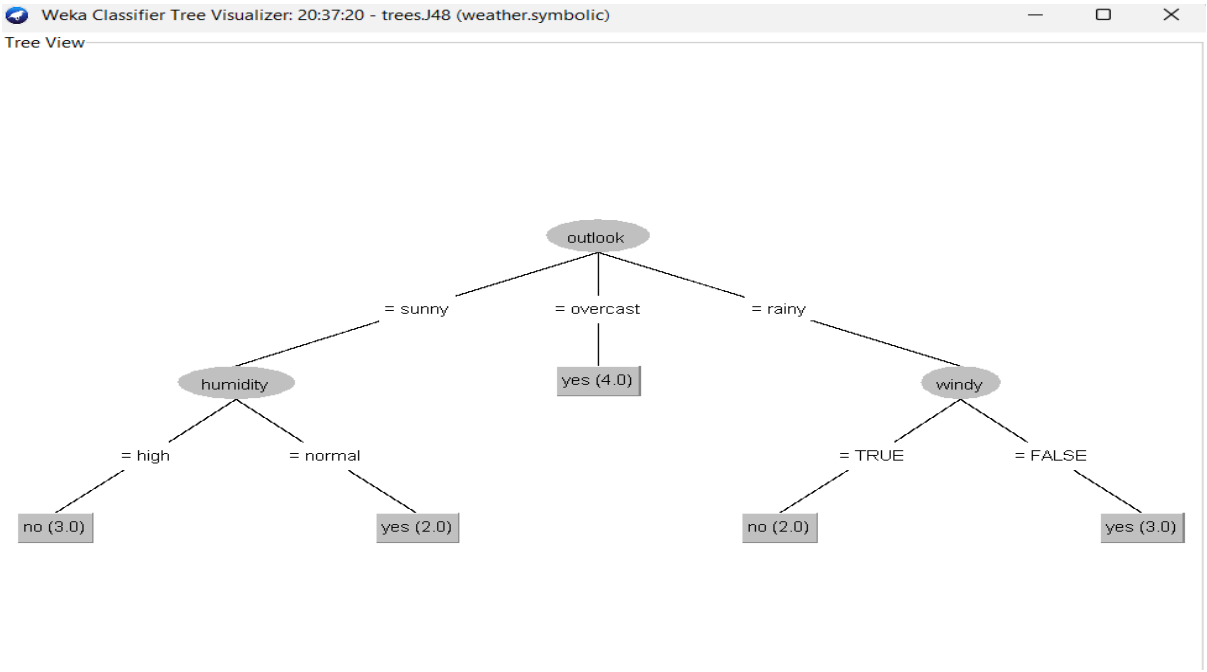
6. Select Evaluation Method : Cross-validation.
7. Click Start to begin classification. The Classifier output section will display results.





1.J48 (Decision Tree):





=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	
	0.556	0.600	0.625	0.556	0.588	-0.043	0.633	0.758	yes
	0.400	0.444	0.333	0.400	0.364	-0.043	0.633	0.457	no
Weighted Avg.	0.500	0.544	0.521	0.500	0.508	-0.043	0.633	0.650	

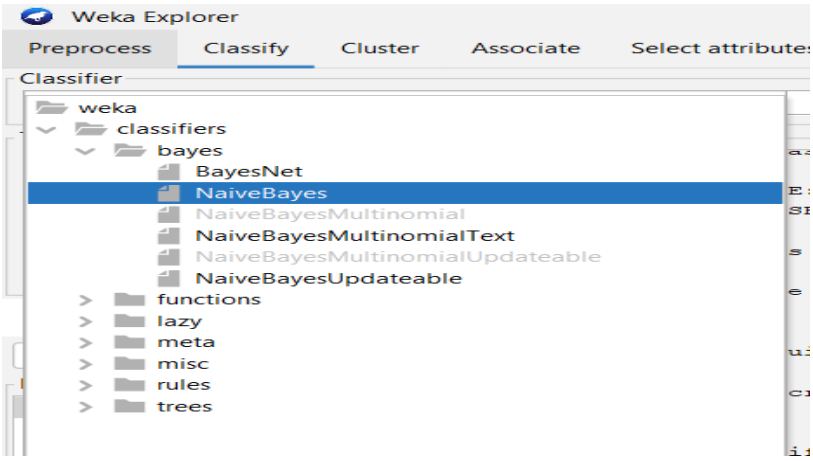
=== Confusion Matrix ===

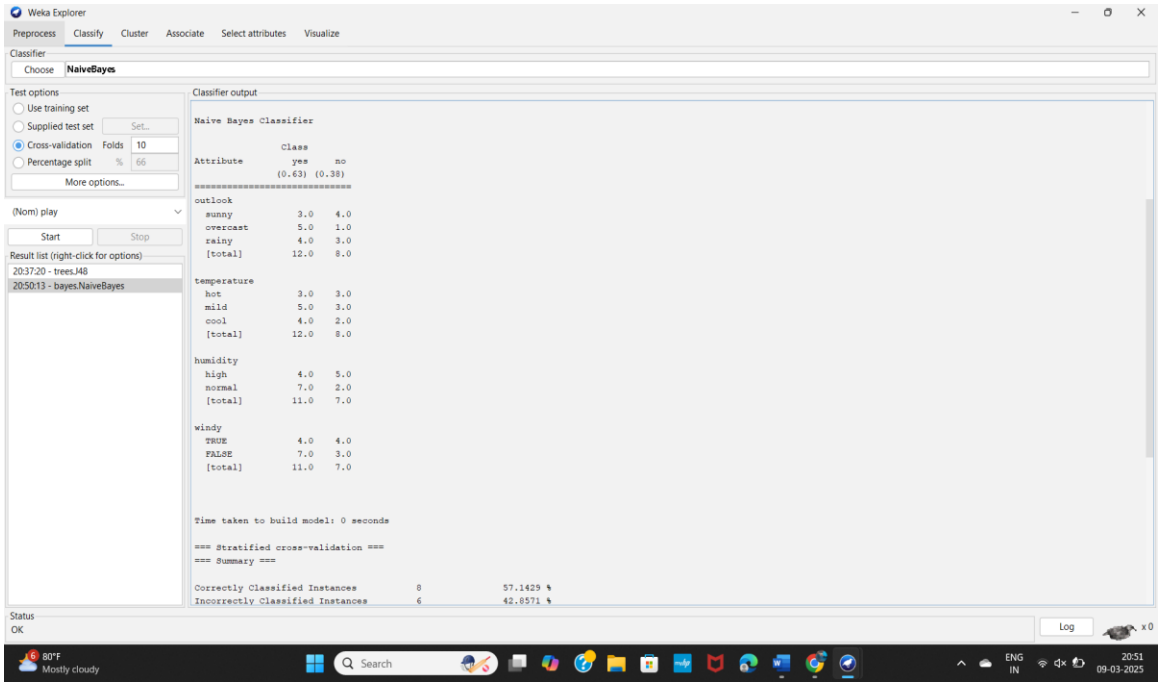
a b <-- classified as

5 4 | a = yes

3 2 | b = no

2.Naive Bayes:





=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	
	0.778	0.800	0.636	0.778	0.700	-0.026	0.578	0.697	yes
	0.200	0.222	0.333	0.200	0.250	-0.026	0.578	0.557	no
Wt Avg.	0.571	0.594	0.528	0.571	0.539	-0.026	0.578	0.647	

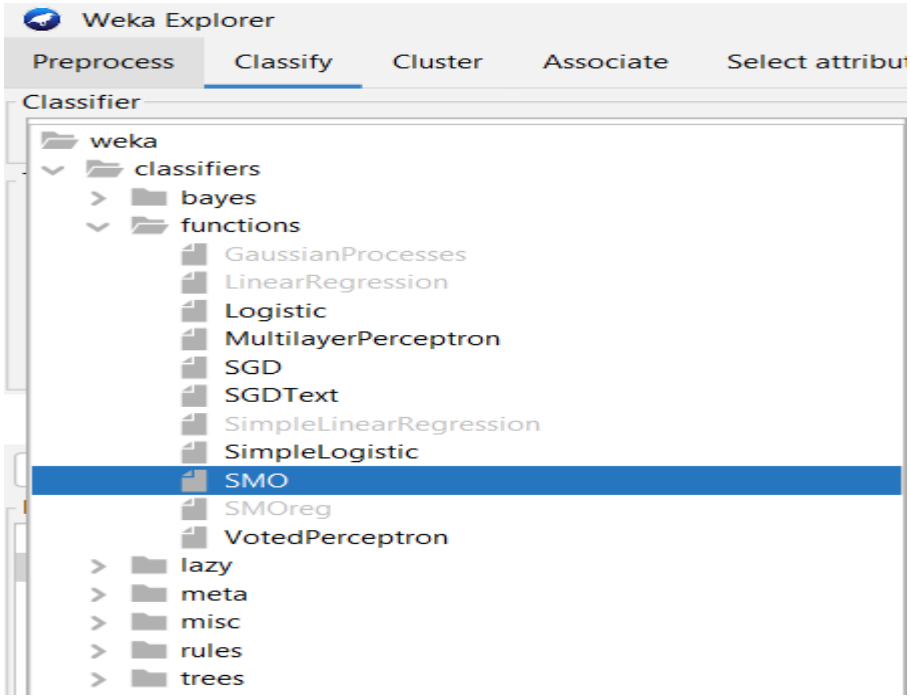
=== Confusion Matrix ===

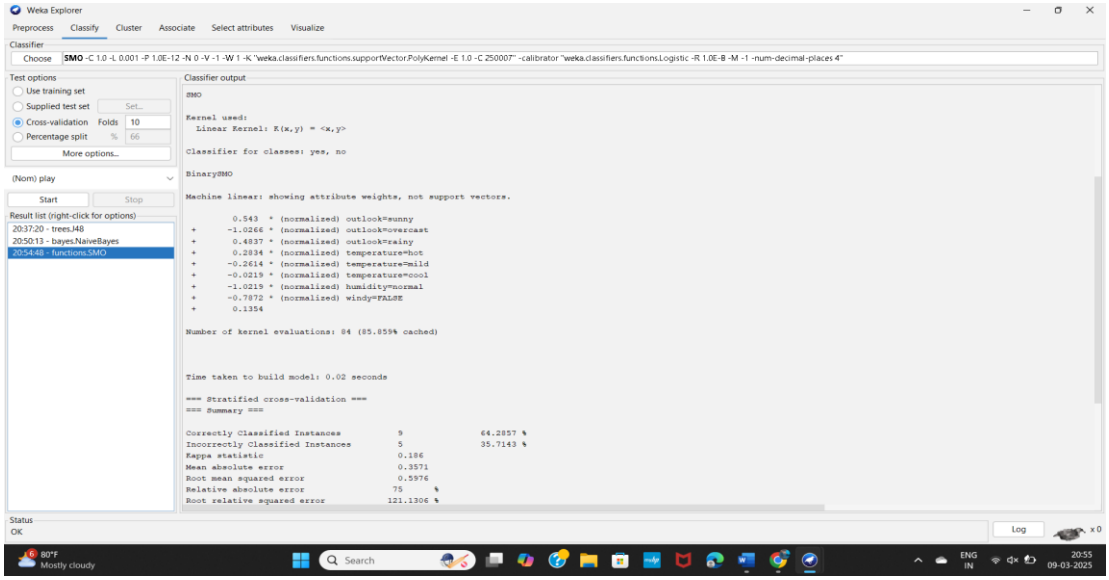
a b <-- classified as

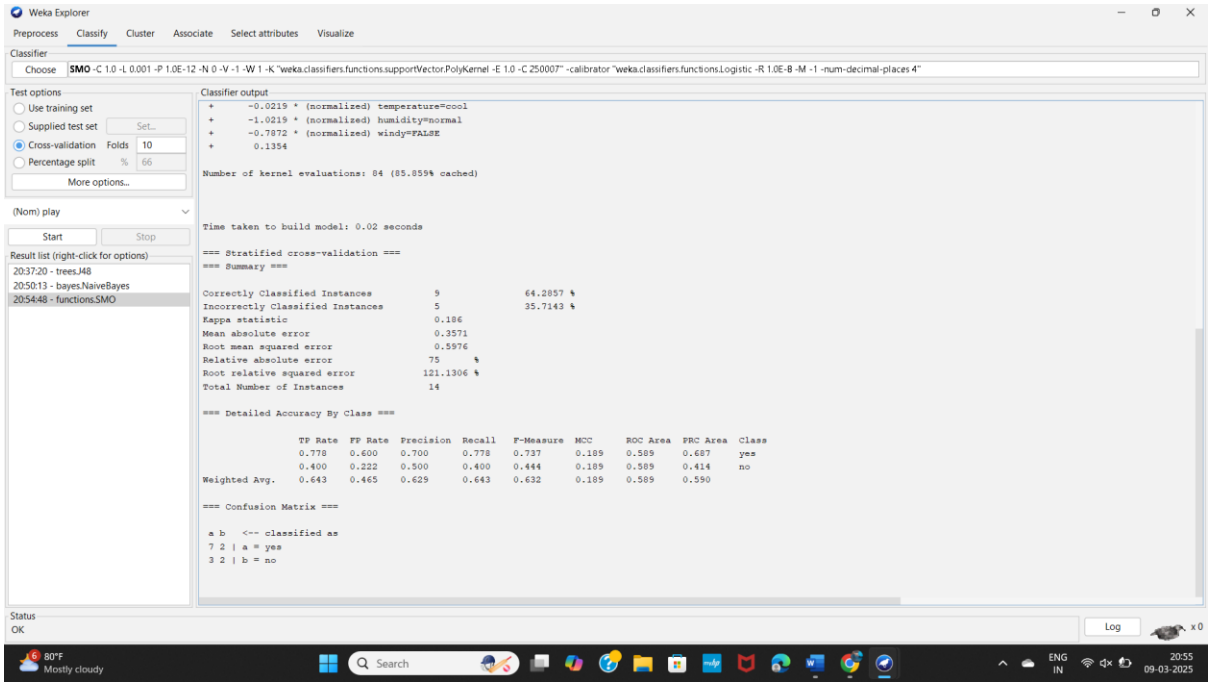
7 2 | a = yes

4 1 | b = no

3. SMO:


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attribut
Classifier
weka
classifiers
bayes
functions
GaussianProcesses
LinearRegression
Logistic
MultilayerPerceptron
SGD
SGDText
SimpleLinearRegression
SimpleLogistic
SMO
SMOreg
VotedPerceptron
lazy
meta
misc
rules
trees


Weka Explorer
Preprocess
Classify
Cluster
Associate
Select attributes
Visualize
Classifier
Choose
SMO -C 1.0 -L 0.001 -P 1.0E-12 -N 0 -V -1 -W 1 -K "weka.classifiers.functions.supportVector.PolyKernel -E 1.0 -C 250007" -calibrator "weka.classifiers.functions.Logistic -R 1.0E-8 -M -1 -num-decimal-places 4"
Test options
Use training set
Supplied test set
Set...
Cross-validation
Folds
10
Percentage split
%
66
More options...
(Nom) play
Start
Stop
Result list (right-click for options)
20:37:20 - trees.J48
20:50:13 - bayes.NaiveBayes
20:54:48 - functions.SMO
Classifier output
SMO
Kernel used:
Linear Kernel: K(x,y) = <x,y>
Classifier for classes: yes, no
BinarySMO
Machine linear: showing attribute weights, not support vectors.
0.543 * (normalized) outlook=sunny
-1.0266 * (normalized) outlook=overcast
0.4837 * (normalized) outlook=rainy
0.2834 * (normalized) temperature=hot
-0.2614 * (normalized) temperature=mild
-0.0219 * (normalized) temperature=cool
-1.0219 * (normalized) humidity=normal
-0.7872 * (normalized) windy=FALSE
0.1354
Number of kernel evaluations: 84 (85.859% cached)
Time taken to build model: 0.02 seconds
=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances 9 64.2857 %
Incorrectly Classified Instances 5 35.7143 %
Kappa statistic 0.186
Mean absolute error 0.3571
Root mean squared error 0.5976
Relative absolute error 75 %
Root relative squared error 121.1306 %
Status
OK
Log
x 0
80°F
Mostly cloudy
Search
ENG
IN
20:55
09-03-2025



=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	
	0.778	0.600	0.700	0.778	0.737	0.189	0.589	0.687	yes
	0.400	0.222	0.500	0.400	0.444	0.189	0.589	0.414	no
Wt Avg.	0.643	0.465	0.629	0.643	0.632	0.189	0.589	0.590	

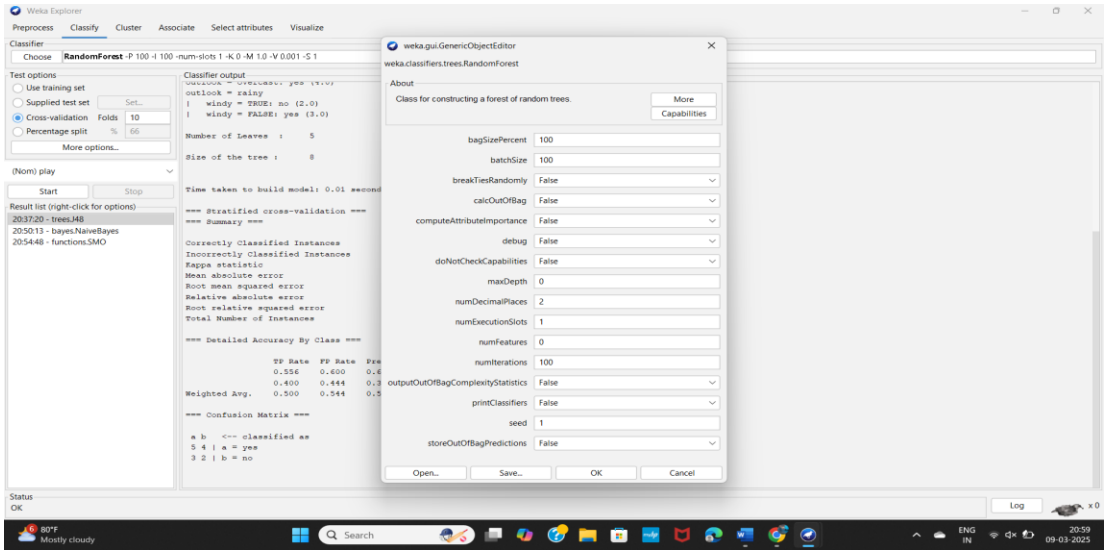
=== Confusion Matrix ===

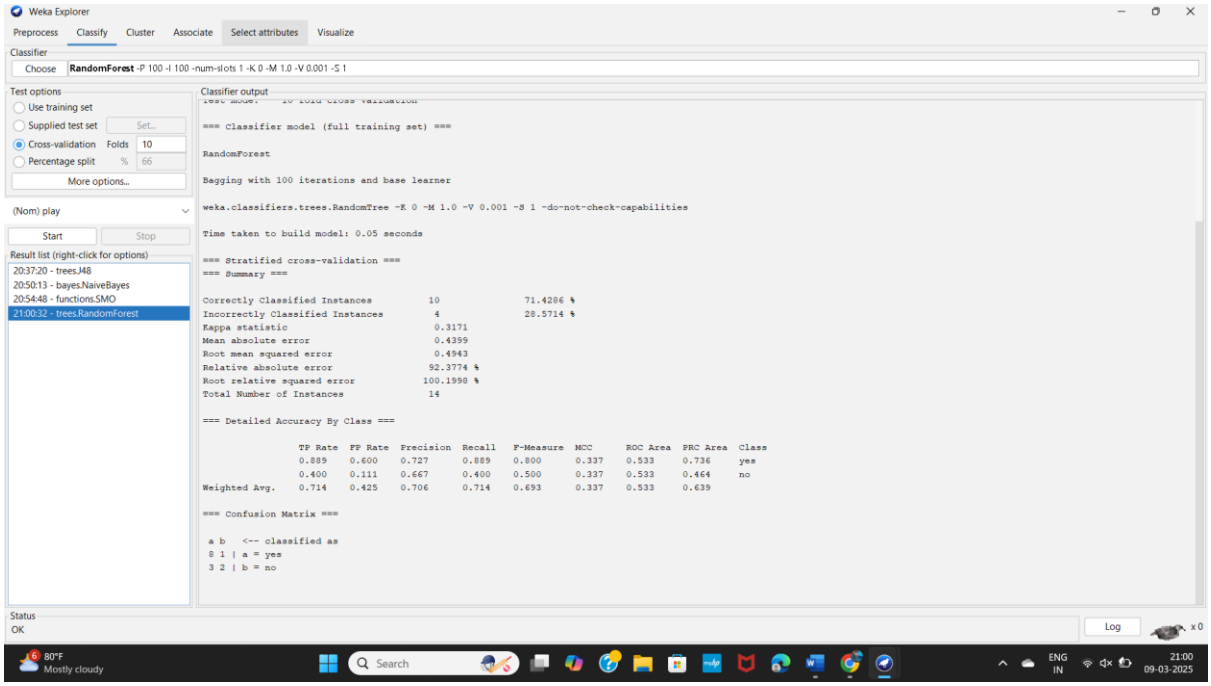
a b <-- classified as

7 2 | a = yes

3 2 | b = no

4. Random Forest:





=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	
	0.889	0.600	0.727	0.889	0.800	0.337	0.533	0.736	yes
	0.400	0.111	0.667	0.400	0.500	0.337	0.533	0.464	no
Weighted Avg.	0.714	0.425	0.706	0.714	0.693	0.337	0.533	0.639	

=== Confusion Matrix ===

a b <-- classified as

8 1 | a = yes

3 2 | b = no

RESULT:

Thus, the comparison of the confusion matrix for all the methods and techniques is performed. Out of the comparing matrix with all the techniques there is a change in instances. The above graphs will show the variations of values in the parameters.